

1966 OPERATING SUMMARY

FRANKFORD

● water pollution
control plant

● water supply system

TD227
F73
W38
1966
MOE

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ONTARIO WATER RESOURCES COMMISSION
Division of Plant Operations

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ONTARIO WATER RESOURCES COMMISSION

OFFICE OF THE GENERAL MANAGER

Members of the Frankford Local Advisory Committee,
Village of Frankford.

Gentlemen:

We are pleased to submit to you the 1966 Operating Summary for the Frankford Water Pollution Control Plant and Water Supply System, OWRC Project Nos. 57-S-9 and 57-W-2.

It is hoped that our joint participation in efforts to combat water pollution will have even more success in the coming year.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly".

D. S. Caverly,
General Manager.

TD
227
F73
W38
1966
MOE

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ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET
TORONTO 5

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VICE-CHAIRMAN

D. S. CAVERLY
GENERAL MANAGER

W. S. MACDONNELL
COMMISSION SECRETARY

General Manager,
Ontario Water Resources Commission.

Dear Sir:

I am happy to present you with the 1966 Operating Summary for the Frankford Water Pollution Control Plant and Water Supply System, OWRC Project Nos. 57-S-9 and 57-W-2.

The report offers a concise summary of operating data for the year and comparisons with previous years where these are applicable and significant.

Yours very truly,

A handwritten signature in cursive script, appearing to read "B. C. Palmer".

B. C. Palmer, P. Eng.,
Director,
Division of Plant Operations.

FOREWORD

● This operating summary contains complete information on the management of the project during 1967. It contains a concise review of the year's plant operation, significant financial details, and a visual presentation in graphs and charts of technical performance.

The information will be of value to interested parties in assessing the adequacy of the project at this time and its ability to meet future requirements.

The report is the result of co-operation by several groups within the Division of Plant Operations. These include the statistics section and the technical publications section. The Division of Finance and the draughting section of the Division of Sanitary Engineering were also closely associated with its publication.

The Regional Operations Engineer, however, has had the primary responsibility for the content, and will be happy to answer any questions regarding it.

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FRANKFORD
water pollution control plant
and
water supply system

operated for

THE VILLAGE OF FRANKFORD

by the

ONTARIO WATER RESOURCES COMMISSION

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Assistant Director:	C. W. Perry
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Operations Engineer:	J. N. Dick

801 Bay Street Toronto 5

'66 REVIEW

SEWAGE SYSTEM

The total operating cost for 1966 was \$5,615.77. The operating costs at this project increased approximately \$700 over 1965 because of salary increases, equipment purchases, and increased repairs and maintenance.

The average concentrations of the BOD and SS in the influent were 181 ppm and 145 ppm respectively. The concentrations of BOD and SS in the plant effluent were 35 ppm and 19 ppm respectively. The percent reduction in BOD was 80.5 and the percent reduction in SS was 87.

A reconditioned Flygt submersible pump was installed in the underground pumping station. This pump is to act as a stand-by in case the other pump fails.

The Wallace & Tiernan chlorinator cracked at the water inlet and had to be repaired. During the repair of this unit a rental chlorinator was obtained from Wallace & Tiernan to be used during its absence. Some chlorine escaped into the administration building at this particular time and could have created a very hazardous condition.

Because recirculation is employed at the Frankford sewage treatment plant for the greater part of the year, accurate flows to the plant are not readily available. During the beginning and the end of the year when the weather does not permit recirculation, total plant flows are available and from these results the average daily flow to the plant was 35,000 gpd.

WATER SYSTEM

The total operating costs for the water system were \$1,920.37 or \$56.60 per million gallons of water used by the Village.

The Frankford water system ran extremely well during 1966, in that no major breakdowns occurred.

PROJECT COSTS

57-S-9

NET CAPITAL COST (Final)	\$162,062.20
DEDUCT - Payments from Municipalities	<u>4,899.45</u>
Long Term Debt to OWRC	<u>\$157,162.75</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1966	\$ <u>22,344.93</u>
Net Operating	\$ 5,615.77
Debt Retirement	3,172.00
Reserve	813.55
Interest Charged	<u>8,842.31</u>
TOTAL	\$ <u>18,443.63</u>

RESERVE ACCOUNT

Balance at January 1, 1966	\$ 4,938.35
Deposited by Municipality	813.55
Interest Earned	<u>269.60</u>
	\$ <u>6,021.50</u>
Less Expenditures	<u>759.50</u>
Balance at December 31, 1966	\$ <u>5,262.00</u>

MONTHLY OPERATING COSTS

57-S-9

MONTH	TOTAL EXPENDITURE	PAYROLL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	SUNDRY
JAN	390.79	265.53				58.76		66.50
FEB	386.63	238.50	45.88	51.66	11.56	1.76	13.00	24.47
MARCH	360.71	252.70	43.94		19.02		21.53	23.52
APRIL	696.35	450.60	44.99		13.57	56.27	97.17	33.75
MAY	640.65	270.74	42.15	228.38	11.99	57.44		30.15
JUNE	630.23	284.03	39.65		24.33	80.12	46.62	155.48
JULY	354.06	256.73	38.87		29.90			28.56
AUG	419.95	267.84	27.50		34.15		32.62	57.84
SEPT	494.53	420.55	37.56					36.42
OCT	404.16	267.84	35.24		9.67		26.00	65.41
NOV	357.26	256.73	36.37		23.82			40.34
DEC	480.05	279.29	41.13		16.57		35.00	108.06
TOTAL	5615.77	3511.08	433.28	280.04	194.58	254.35	271.94	670.50

57 - W - 2

NET CAPITAL COST (Final)
Long Term Debt to OWRC

\$119,401.83

Debt Retirement Balance at Credit
(Sinking Fund) December 31, 1966

\$ 16,490.03

Net Operating

\$ 1,940.37

Debt Retirement

2,410.00

Reserve

507.81

Interest Charged

6,717.88

TOTAL

\$ 11,576.06

RESERVE ACCOUNT

Balance at January 1, 1966

\$ 4,182.28

Deposited by Municipality

507.81

Interest Earned

241.76

Less Expenditures

-

Balance at December 31, 1966

\$ 4,931.85

MONTHLY OPERATING COSTS

57 - W - 2

MONTH	TOTAL EXPENDITURE	PAYROLL	POWER	REPAIRS & MAINTENANCE	SUNDRY
JAN	83.77	83.77			
FEB	135.04	79.50	55.54		
MARCH	147.99	79.50	54.58	13.91	
APRIL	189.59	140.74	48.85		
MAY	130.66	85.50	45.16		
JUNE	424.07	91.65	44.14		288.28
JULY	127.96	82.55	45.41		
AUG	132.60	86.25	46.35		
SEPT	187.83	137.15	50.68		
OCT	119.05	86.25	45.79		(12.99)
NOV	124.33	82.55	41.78		
DEC	137.48	90.07	47.41		
TOTAL	1940.37	1125.48	525.69	13.91	275.29

BRACKETS INDICATE CREDIT

YEARLY OPERATING COSTS

YEAR	M. G. TREATED	TOTAL COST	COST PER FAMILY PER YEAR	COST PER THOUSAND GALLONS
1965	30,495	\$2,065.84	* \$4.76	\$0.07
1966	34,353	\$1,940.37	\$4.64	\$0.06

* BASED ON ESTIMATED ANNUAL POPULATION AND 3.9 PERSONS PER FAMILY

Process Data (WPCP)

AVERAGE DAILY FLOW

M.G.D.

RECIRCULATION

PERIOD

RECIRCULATION

PERIOD

JAN. FEB. MAR. APR. MAY. JUNE. JULY. AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY. JUNE. JULY. AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY. JUNE. JULY. AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY. JUNE. JULY. AUG. SEPT. OCT. NOV. DEC.

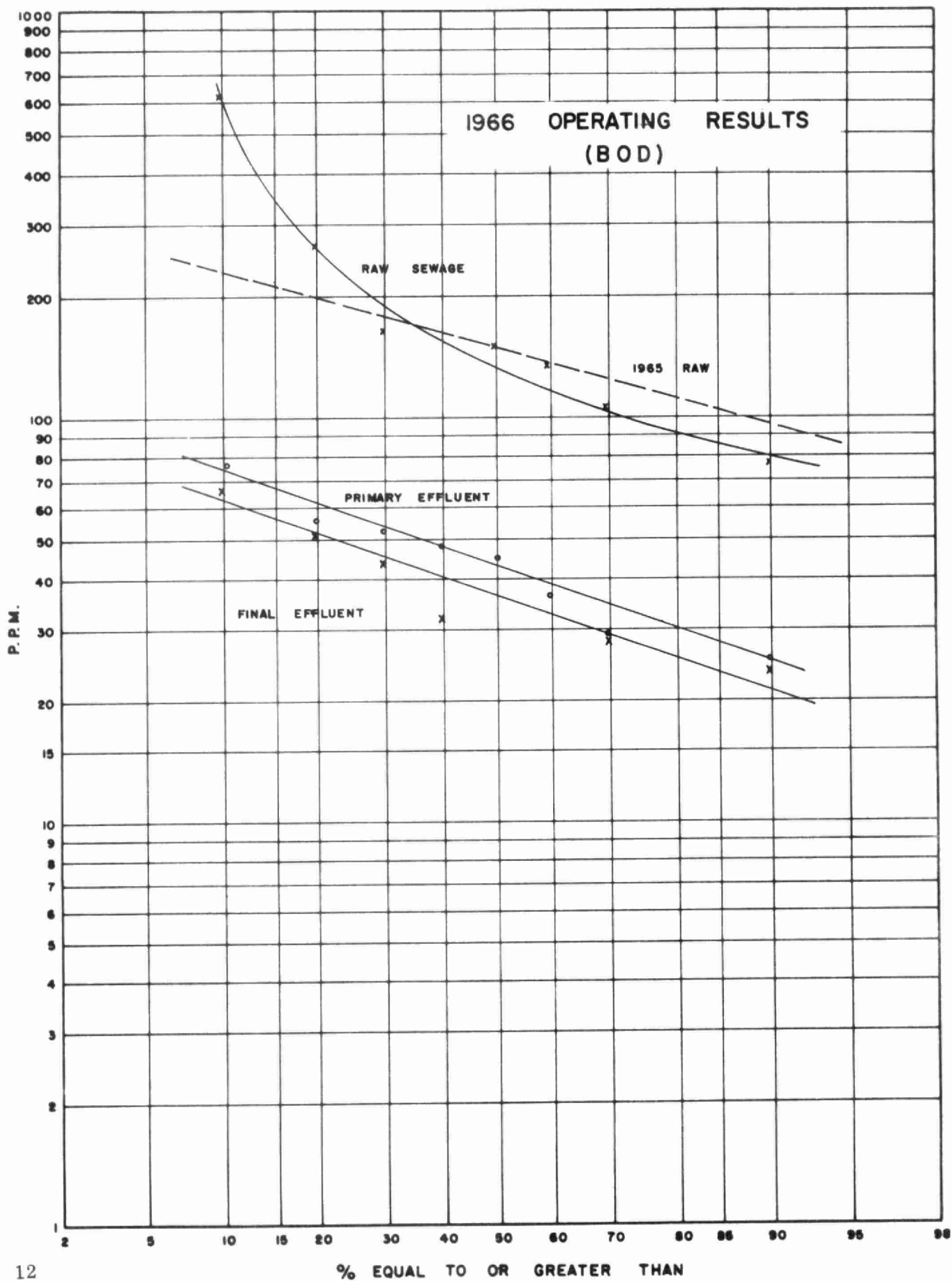
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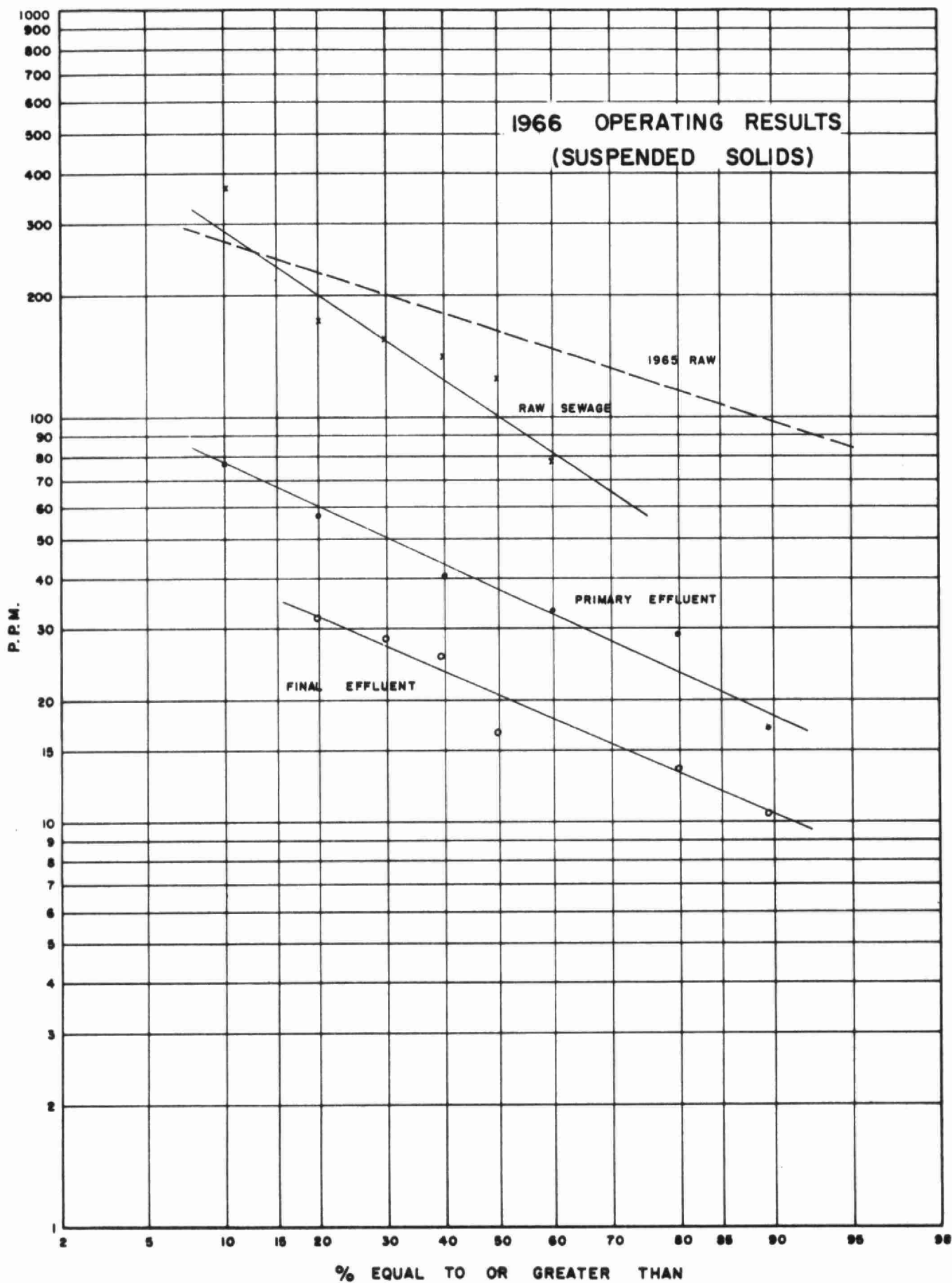
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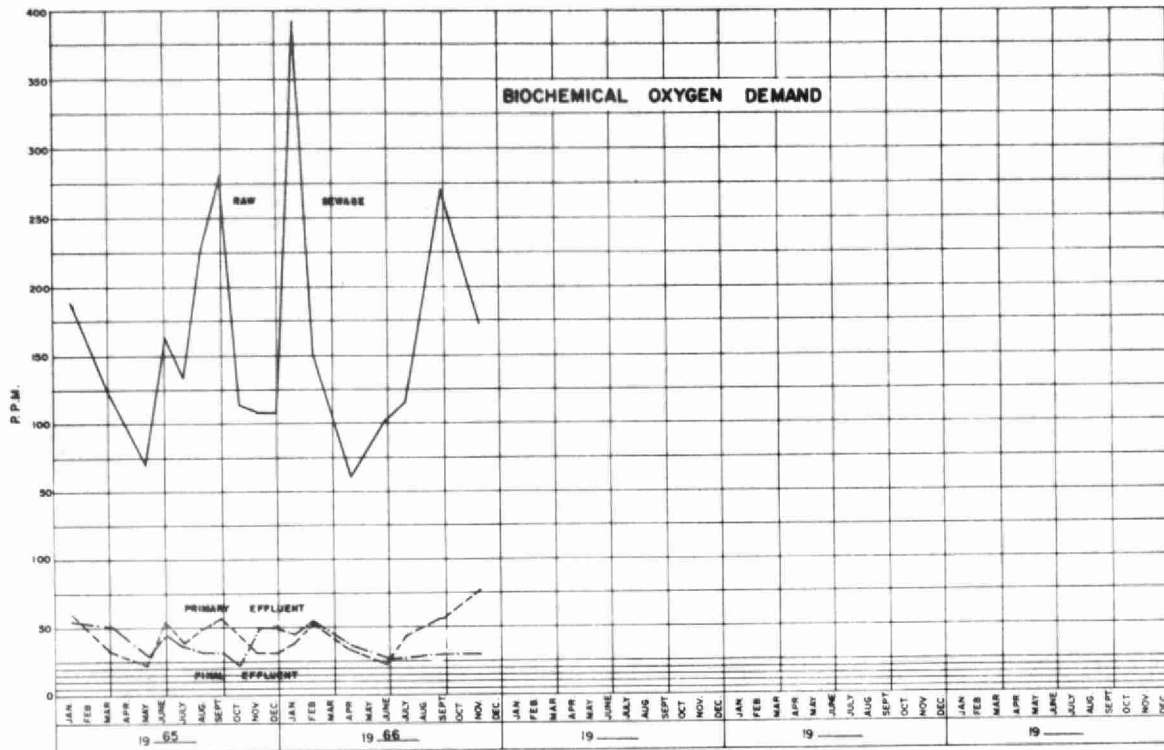
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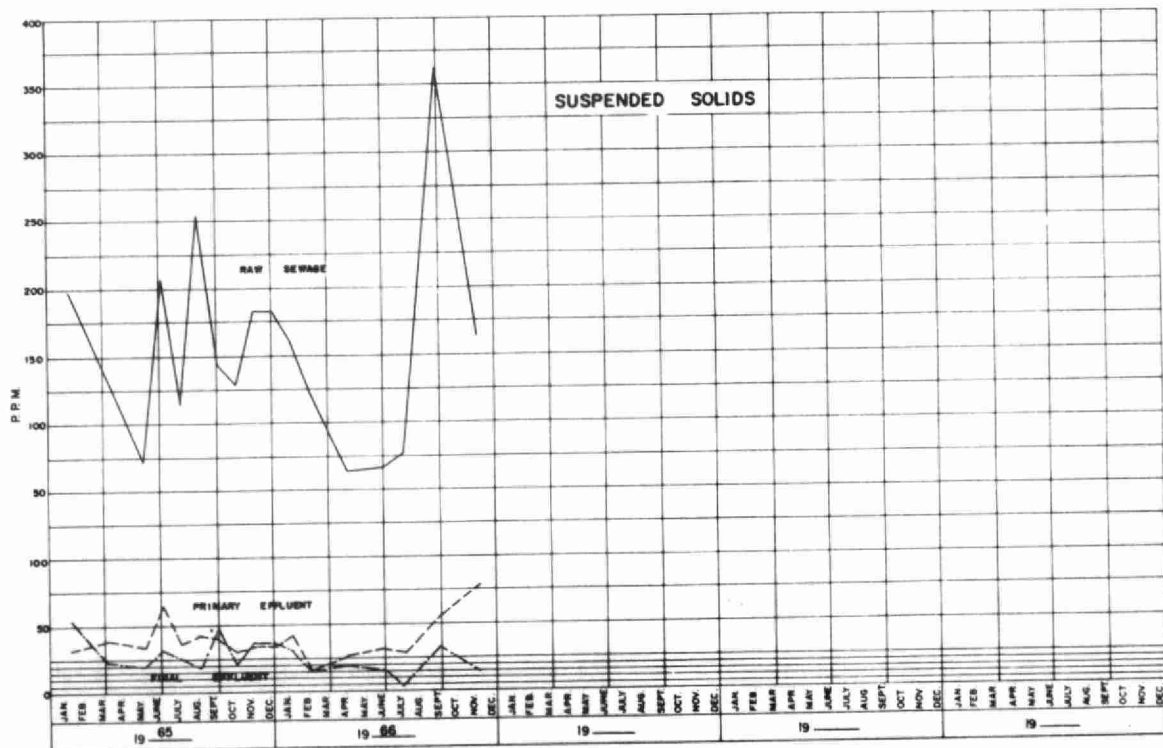
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MONTHLY VARIATIONS



GRIT, B.O.D AND S.S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	
JAN.	395	45	88.5	6.9	160	30	81.0	2.5	4
FEB.	150	52	65.6	1.7	122	15	87.5	1.8	4
MAR.	-	-	-	-	-	-	-	-	4
APR.	60	36	40.0	0.6	62	20	67.5	1.0	5
MAY	-	-	-	-	-	-	-	-	2
JUNE	104	26	75.0	-	66	16	76.0	-	5
JULY	115	26	77.5	-	76	4	94.5	-	5
AUG.	-	-	-	-	-	-	-	-	4
SEPT.	270	30	89.0	-	368	32	91.5	-	5
OCT.	-	-	-	-	-	-	-	-	4
NOV.	173	29	83.0	-	162	14	91.5	-	2
DEC.	-	-	-	-	-	-	-	-	4
TOTAL	-	-	-	41.1	-	-	-	35.4	48
AVG.	181	35	80.5	3.4	145	19	87.0	3.0	4

Loadings calculated on average daily flow of 0.154 during non-recirculation period and average concentrations.

COMMENTS

The concentration of BOD and SS in the Frankford treatment plant influent was 181 ppm and 145 ppm respectively. The concentration of BOD and SS in the plant effluent was 35 ppm and 19 ppm respectively. This resulted in a percent reduction in BOD of 80.5 and a percent reduction in SS of 87. The results were obtained from seven eight-hour composite samples gathered at the Frankford treatment plant and submitted to the Toronto laboratory for analysis.

The total amount of grit removed from the waste at the treatment plant in 1966 was 48 cubic feet. This appears to be in line with the separate sewers that have been installed in the Village of Frankford.

CHLORINATION

MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	3.920	156	3.98
FEBRUARY	3.442	140	4.07
MARCH	6.543	152	2.32
APRIL	* 2.034	* 151	3.20
MAY	-	153	-
JUNE	-	152	-
JULY	-	156	-
AUGUST	-	148	-
SEPTEMBER	-	153	-
OCTOBER	-	155	-
NOVEMBER	-	151	-
DECEMBER	** 4.432	** 133	2.71
TOTAL	-	1800	-
AVERAGE	4.687	150	3.11

* Up to April 14, recirculation commenced.

** From December 3, recirculation discontinued.

COMMENTS

The plant effluent is chlorinated continually in the Village of Frankford for disinfection purposes. The effluent required approximately 3.11 ppm of chlorine to obtain the OWRC objective of 0.5 ppm after a 15-minute detention period.

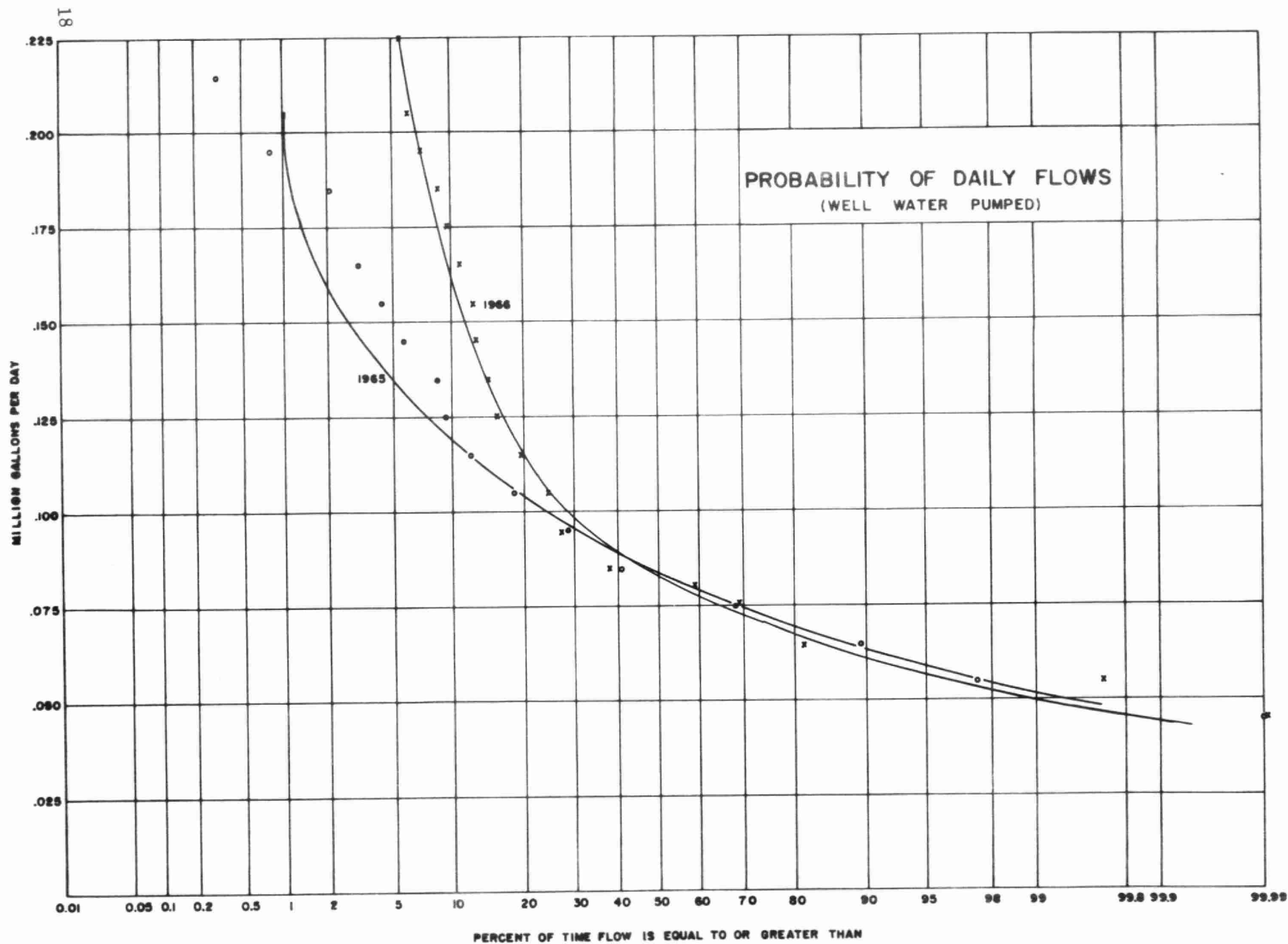
Process Data (WATER SUPPLY SYSTEM)

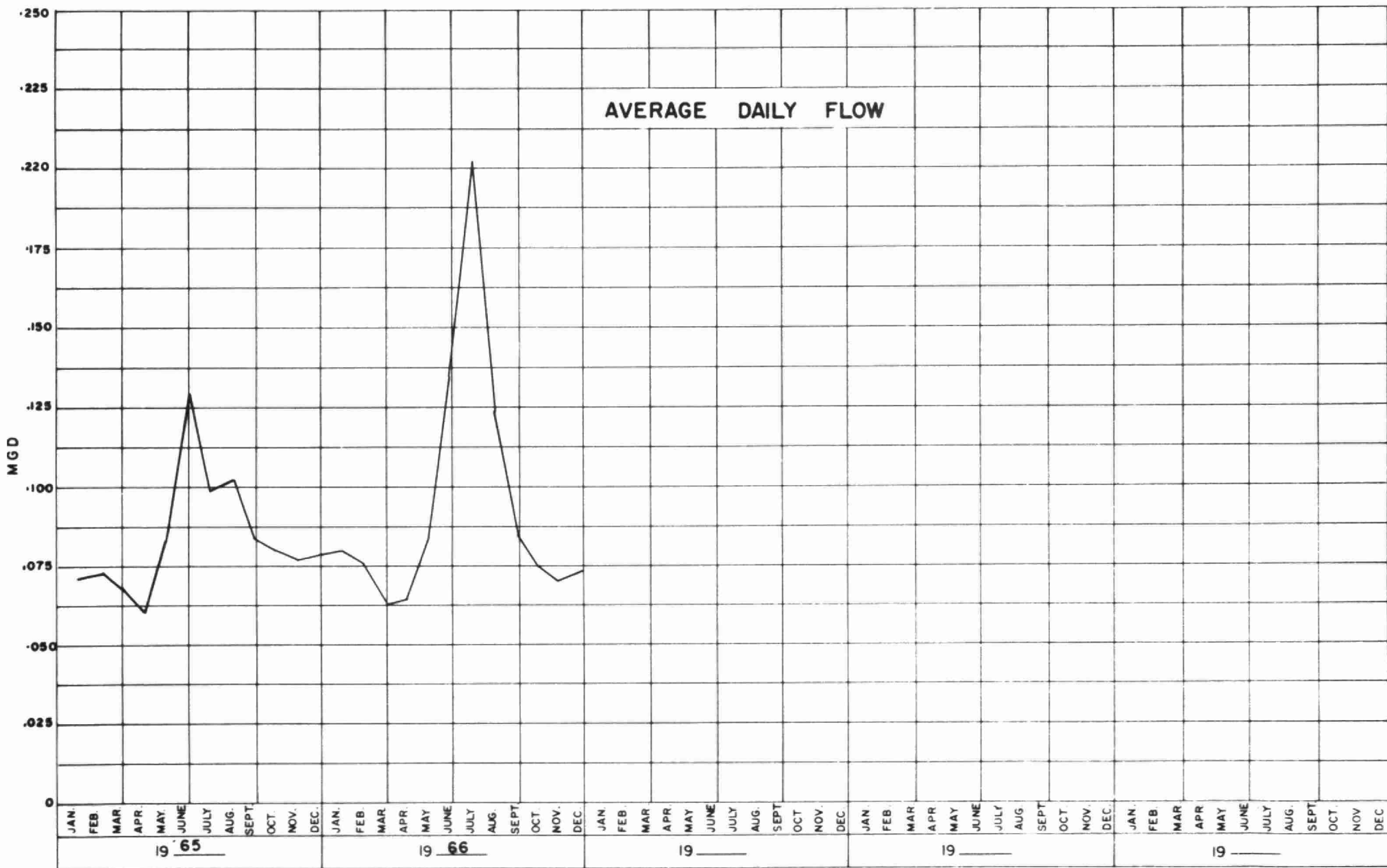
PROBABILITY OF FLOWS

From the probability of daily flow curves it can be seen that 5 percent of the time, flows were equal to or greater than .225 mgd. This higher percentage was due to the dry month of July, when 6.3 mg of water was pumped. The average daily flow for 1966 was .094 mgd.

MONTHLY AVERAGE DAILY FLOW

The highest monthly average daily flows were recorded in July at .204 mgd, and the lowest in April, at .067 mgd. The high demand for water in the summer months was due to the dry weather and lawn watering.





<u>MONTHLY FLOWS</u>			
January	2.408	July	6.314
February	2.105	August	3.788
March	2.048	September	2.517
April	2.018	October	2.249
May	2.668	November	2.035
June	4.047	December	2.156
Total		34.353	
Average		2.863	

COMMENTS

The total quantity of well water pumped to the distribution system in 1966 was 34,353 mg. This was an increase of 4 mg over 1965. The monthly average was 2.863 mg, an increase of .322 mg.

LABORATORY LIBRARY



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RECOMMENDATIONS

The chlorination facilities at the Village of Frankford sewage treatment plant should be modified to meet the Department of Labour regulations.

	DATE DUE		

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